

In the Specification

Page 1, second paragraph, please amend as follows:

~~The present invention~~ This disclosure relates to a method and apparatus for producing a new plasma display suitably used for wall mounted television sets, information displays, etc.

Page 1, fourth paragraph, please amend as follows:

~~The present invention~~ disclosure also relates to a means for providing a plasma display capable of forming a phosphor layer usable as a highly precise plasma display in this field.

Page 1, last paragraph through the top of Page 2, please amend as follows:

Prior ArtBackground

A plasma display has electric discharge caused in discharge spaces formed between a front glass substrate and a rear glass substrate. The discharge yield ultraviolet rays with 147 nm as the central wavelength to be generated from xenon gas, and the ultraviolet rays excite phosphor to allow display. If discharge cells respectively selectively coated with any of phosphor emitting light of red, green and blue are caused to emit light by a drive circuit, they can display in full color.

Page 4, through the top of Page 5, please amend as follows:

Disclosure of the Invention

~~The inventors studied intensively on any means for producing a plasma display free from the above disadvantages, and as a result, completed the present invention described below.~~

~~An object of the present invention is is~~ It could therefore be helpful to provide a method for producing a plasma display capable of highly accurately and simply forming a phosphor layer in the spaces between highly precise barrier ribs[.]and

~~Another object of the present invention is to provide~~ an apparatus for producing the above high quality plasma display continuously at a high productivity level.

~~Other objects of the present invention will be clarified in the following description.~~

~~These objects of the present invention can be industrially advantageously achieved by the following method and apparatus for producing a plasma display.~~

On page 5, first and second paragraphs, please amend as follows:

Summary

The method for producing a plasma display ~~of the present invention~~ comprises the step of continuously applying a phosphor paste containing a phosphor powder and an organic compound onto a substrate with a plurality of barrier ribs from a paste applicator with a plurality of outlet holes, to form a phosphor layer. The method for producing a plasma display ~~of the present invention~~ also comprises the steps of coating a substrate with a plurality of barrier ribs, with three phosphor pastes respectively containing a phosphor powder emitting light of red, green or blue, as stripes in the spaces between the barrier ribs on the substrate, from a paste applicator with outlet holes, and heating to form a phosphor layer.

The method for producing a plasma display ~~of the present invention~~ includes the following preferable embodiments.

(1) The space (S) between the respectively adjacent barrier ribs and the average diameter (D) of the outlet holes satisfy the following formula:

$$10\ \mu\text{m} \leq D \leq S \leq 500\ \mu\text{m}$$

(2) The outlet holes are formed in a flat plate or as nozzles or needles.

(3) The paste applicator used has 20 to 2000 outlet holes, more preferably 150 to 2000 outlet holes.

On page 7, please amend paragraph (15) as follows:

(15) After the paste applicator and the substrate have ~~been~~ started to ~~be moved relatively~~move relative to each other in parallel to the barrier ribs on the substrate, the application of phosphor pastes is started, and before the relative movement is stopped, the application is stopped.

On page 9, please amend paragraph (28) as follows:

(28) The lateral side wall thickness (T1) of the phosphor layer at the position corresponding to a half of the height of each barrier rib and the bottom wall thickness (T2) of the phosphor layer satisfy the following relation:

$$10 \leq T1 \leq 50 \mu\text{m}$$

$$10 \leq T2 \leq 50 \mu\text{m}$$

$$0.2 \leq T1/T2 \leq 5$$

The apparatus for producing a plasma display ~~of the present invention~~ comprises a table for fixing a substrate with a plurality of barrier ribs, a paste applicator with a plurality of outlet holes to face the barrier ribs of the substrate, a supply means for supplying a phosphor paste to the paste applicator, and a moving means for three-dimensionally moving the table and the paste applicator relatively each other.

The apparatus for producing a plasma display ~~of the present invention~~ includes the following preferable embodiments.

Bridging page 14, first paragraph, through the second paragraph of page 15, please amend as follows:

Brief Description of the Drawings

Fig. 1 is a schematic drawing of a coating device for illustrating an example of the

photosensitive paste coating process ~~of the present invention.~~

Fig. 2 is a sectional view for illustrating the relation between the substrate for the plasma display ~~of the present invention~~ and the paste applicator for coating.

Fig. 3 is a schematic general perspective view showing one example of the plasma display producing apparatus ~~as an embodiment of the present invention.~~

Fig. 4 is a schematic drawing for illustrating an important portion of the plasma display producing apparatus shown in Fig. 3.

Fig. 5 is a perspective view showing an example of the paste applicator ~~used in the present invention.~~

Fig. 6 is a perspective view showing another example of the paste applicator ~~used in the present invention.~~

Fig. 7 is a sectional view and bottom view showing a further other example of the paste applicator ~~used in the present invention.~~

Fig. 8 is a perspective view showing an example of the plasma display producing apparatus ~~as another embodiment of the present invention.~~

Fig. 9 is a side view showing a device for cleaning the outlet holes faces of the paste applicator in the plasma display producing apparatus ~~of the present invention.~~

Bridging the bottom of page 17, last paragraph, through the top of page 18, please amend as follows:

The Most Preferable Embodiments of the InventionDetailed Description

A plasma display mainly consists of a front glass substrate and a rear glass substrate, and has a rare gas contained between the substrate sealed.

Page 20, first paragraph, please amend as follows:

~~Especially in the present invention, a~~ phosphor layer can be formed on a glass substrate with highly precise barrier ribs, though it is difficult to do so by conventional screen printing. For example, when the barrier ribs are in stripes with the following preferable dimensions, a phosphor layer with few defects compared to that obtained by screen printing can be formed.

Pitch : 100 ~ 250 μm

Width : 15 ~ 40 μm

Height : 60 ~ 170 μm

Page 20, last paragraph bridging Page 21, please amend as follows:

~~In the present invention, onto~~Onto the glass substrate with the barrier ribs as described above, pastes respectively containing a phosphor powder are applied from a paste applicator with a plurality of outlet holes, for forming the phosphor layer.

Page 21, first paragraph, please amend as follows:

The phosphor powders used emit light of red, green and blue. As the phosphor powders used ~~in the present invention~~, those emitting light of red include $\text{Y}_2\text{O}_3\text{:Eu}$, $\text{YVO}_4\text{:Eu}$, $(\text{Y}, \text{Gd})\text{BO}_3\text{:Eu}$, $\text{Y}_2\text{O}_3\text{S:Eu}$, $\gamma\text{-Zn}_3(\text{PO}_4)_2\text{:Mn}$, $(\text{ZnCd})\text{S:Ag+In}_2\text{O}_3$, etc. Those emitting light of green include $\text{Zn}_2\text{GeO}_2\text{:Mn}$, $\text{BaAl}_{12}\text{O}_{19}\text{:Mn}$, $\text{Zn}_2\text{SiO}_4\text{:Mn}$, $\text{LaPO}_4\text{:Tb}$, ZnS:Cu,Al , ZnS:Cu,Au,A1 , $(\text{ZnCd})\text{S:Cu,A1}$, $\text{Zn}_2\text{SiO}_4\text{:Mn,As}$, $\text{Y}_3\text{Al}_5\text{O}_{12}\text{:Ce}$, $\text{CeMgAl}_{11}\text{O}_{19}\text{:Tb}$, $\text{Gd}_2\text{O}_2\text{S:Tb}$, $\text{Y}_3\text{Al}_5\text{O}_{12}\text{:Tb}$, ZnO:Zn , etc. Those emitting light of blue include $\text{Sr}_5(\text{PO}_4)_3\text{Cl:Eu}$, $\text{BaMgAl}_{14}\text{O}_{23}\text{:Eu}$, $\text{BaMgAl}_{16}\text{O}_{27}\text{:Eu}$, $\text{BaMg}_2\text{Al}_{14}\text{O}_{24}\text{:Eu}$, $\text{ZnS:Ag+red pigment}$, $\text{Y}_2\text{SiO}_3\text{:Ce}$, etc.

Page 21, last paragraph bridging Page 22, please amend as follows:

~~Furthermore, the present invention allows the use of rare~~Rare earth element tantalate phosphor can be used in which at least one matrix forming rare earth element selected from yttrium (Y), gadolinium (Gd) and lutetium (Lu) is substituted by at least one element selected

from a group consisting of thulium (Tm), terbium (Tb) and europium (Eu). A preferable rare earth element tantalate phosphor is europium activated yttrium tantalate represented by composition formula $Y_{1-x}Eu_xTaO_4$ (where x is approximately 0.005 to 0.1). A preferable red phosphor is europium activated yttrium tantalate and a preferable green phosphor is terbium activated yttrium tantalate represented by composition formula $Y_{1-x}Eu_xTaO_4$ (where x is approximately 0.001 to 0.2). A preferable blue phosphor is terbium activated yttrium tantalate represented by $Y_{1-x}Eu_xTaO_4$ (where x is approximately 0.001 to 0.2). Further preferable green phosphor include a manganese activated zinc phosphor ($Zn_2SiO_4:Mn$) with an average grain size of $2.0\ \mu m$ to $8.0\ \mu m$ activated by 0.2 wt% to less than 0.1 wt% of manganese based on the weight of zinc silicate (Zn_2SiO_4) matrix, and a manganese activated zinc silicate phosphor represented by general formula $(Zn_{1-x}n_x)O \cdot \alpha SiO_2$ (where $0.01 \leq x \leq 0.2$ and $0.5 < \alpha \leq 1.5$).

Page 23, first full paragraph, please amend as follows:

The organic component ~~used in the present invention~~ contains a binder resin, solvent and, as required, such additives as a plasticizer, dispersing agent and leveling agent.

Bridging Page 26, first full paragraph, please amend as follows:

~~In the present invention, the~~The phosphor paste can contain an organic dye, to allow coated portions to be more easily distinguished from non-coated portions. In this case, if the layer of the phosphor of red, green and blue contains organic dyes capable of developing respectively different colors, the defect inspection after coating can be effected more easily. The organic dyes which can be used here include leuco dyes, azo dyes, aminoketone dyes, xanthene dyes, quinoline dyes, aminoketone dyes, anthraquinone dyes, benzophenone dyes, diphenyl cyanoacrylate dyes, triazine dyes, p-aminobenzoic acid dyes, etc., concretely, Sudan Blue, Sudan 4, Victoria Pure Blue, Nile Blue, Brilliant Green, Neutral Red, Methyl Violet, etc.

Page 26, second paragraph bridging Page 27, please amend as follows:

~~In the present invention, a~~A photosensitive phosphor paste containing a photosensitive compound as a binder resin can also be used. If a photosensitive phosphor paste is used, the phosphor paste deposited in unnecessary portions can be removed by exposure and development using a photo mask. Especially when the phosphor paste is deposited on the top surfaces of barrier ribs or goes into the cells adjacent to the cells to be coated, color mixing or electric discharge failure can be prevented by exposing only the portions to be coated, to light, and removing the portions not exposed with the light, by development.

Bridging Page 27, last full paragraph, through the last paragraph on Page 28 please amend as follows:

It is preferable that the amount of the organic component containing a photosensitive compound ~~used in the present invention~~ is 15 to 60 wt%. If the amount is less than 15 wt%, the pattern formability declines due to insufficient photosensitivity. If larger than 60 wt%, the capability to remove the binder at the time of burning is poor, and burning tends to be insufficient.

The photosensitive component ~~used in the present invention~~ can be either a light insolubilizable photosensitive component or a light solubilizable photosensitive component. The light insolubilizable photosensitive components which can be used here include the following:

- (A) A component which contains one or more functional monomers, oligomers and polymers with one or more unsaturated groups in the molecule
- (B) A component which contains a photosensitive compound such as an aromatic diazo compound, aromatic diazide component or organic halogen compound
- (C) A so-called diazo resin such as a condensation product of a diazo based amine and formaldehyde

The light solubilizable photosensitive components which can be used here include the following:

(D) A component which contains a complex of a diazo compound with an inorganic salt or organic acid, or quinonediazo

(E) Naphthoquinone 1,2-diazido-5-sulfonate of phenol or novolak resin, etc. obtained by combining a quinonediazo with a proper polymer binder

~~In the present invention, all~~All of the above photosensitive components can be used, but a photosensitive component of (A) is especially preferable. ~~In the present invention, a~~A photosensitive paste with inorganic fine grains mixed can also be simply used.

Page 29, first paragraph bridging page 30, please amend as follows:

A photosensitive monomer refers to a compound with a carbon-carbon unsaturated bond. The photosensitive monomers which can be used here include, for example, methyl acrylate, ethyl acrylate, n-propyl acrylate, isopropyl acrylate, n-butyl acrylate, sec-butyl acrylate, iso-butyl acrylate, tert-butyl acrylate, n-pentyl acrylate, allyl acrylate, benzyl acrylate, butoxyethyl acrylate, butoxy triethylene glycol acrylate, cyclohexyl acrylate, dicyclopentanyl acrylate, dicyclopentenyl acrylate, 2-ethylhexyl acrylate, glycerol acrylate, glycidyl acrylate, heptadecafluorodecyl acrylate, 2-hydroxyethyl acrylate, isobornyl acrylate, 2-hydroxypropyl acrylate, isodecyl acrylate, isooctyl acrylate, lauryl acrylate, 2-methoxyethyl acrylate, methoxy ethylene glycol acrylate, methoxy diethylene glycol acrylate, octafluoropentyl acrylate, phenoxyethyl acrylate, stearyl acrylate, trifluoroethyl acrylate, allylated cyclohexyl diacrylate, 1,4-butanediol diacrylate, 1,3-butylene glycol diacrylate, ethylene glycol diacrylate, diethylene glycol diacrylate, triethylene glycol diacrylate, polyethylene glycol diacrylate, dipentaerythritol hexaacrylate, dipentaerythritol monohydropentaacrylate, ditrimethylolpropane tetraacrylate, glycerol diacrylate, methoxylated cyclohexyl diacrylate, neopentyl glycol diacrylate, propylene glycol diacrylate, polypropylene

glycol diacrylate, triglycerol diacrylate, trimethylolpropane triacrylate, acrylamide, aminoethyl acrylate, phenyl acrylate, phenoxyethyl acrylate, benzyl acrylate, 1-naphthyl acrylate, 2-naphthyl acrylate, bisphenol A diacrylate of bisphenol A – ethylene oxide addition product, diacrylate of bisphenol A – propylene oxide addition product, thiophenol acrylate, benzylmercaptane acrylate, monomers obtained by substituting the hydrogen atoms of these aromatic rings by 1 to 5 chlorine or bromine atoms, styrene, p-methylstyrene, o-methylstyrene, m-methylstyrene, chlorinated styrene, brominated styrene, α -methyl styrene, chlorinated α -methylstyrene, brominated α -methylstyrene, chloromethylstyrene, hydroxymethylstyrene, carboxymethylstyrene, vinylnaphthalene, vinylanthracene, vinylcarbazole, compounds obtained by substituting the acrylate in the molecule of each of the above compounds partially or wholly by methacrylate, γ -methacryloxypropyltrimethoxysilane, 1-vinyl-2-pyrrolidon, etc. One or more of these compounds can be used in the present invention.

Page 32, first full paragraph, please amend as follows:

~~In the present invention, if~~ If photo-reactive groups are added to the side chains or molecular ends of the above polymer or oligomer, it can be used as a photosensitive polymer or photosensitive oligomer. Preferable photo-reactive groups are ethylenic unsaturated groups which include vinyl groups, allyl groups, acryl groups, methacryl groups, etc.

Page 33, first paragraph bridging Page 34, please amend as follows:

The photo polymerization initiators which can be used here include, for example, benzophenone, methyl o-benzoylbenzoate, 4,4-bis(dimethylamine)benzophenone, 4,4-bis(diethylamino)benzophenone, 4,4-dichlorobenzophenone, 4-benzoyl-4-methyl diphenyl ketone, dibenzyl ketone, fluorenone, 2,2-diethoxyacetophenone, 2,2-dimethoxy-2-phenyl-2-phenylacetophenone, 2-hydroxy-2-methylpropiophenone, p-t-butylldichloroacetophenone, thioxanthone, 2-methylthioxanthone, 2-chlorothioxanthone, 2-isopropylthioxanthone,

diethylthioxanthone, benzyl, benzyldimethyl ketanol, benzylmethoxyethyl acetal, benzoin, benzoin methyl ether, benzoin butyl ether, anthraquinone, 2-t-butylanthraquinone, 2-amylanthraquinone, β -chloroanthraquinone, anthrone, benzanthrone, dibenzosuberone, methyleneanthrone, 4-azidobenzalacetophenone, 2,6-bis(p-azidobenzylidene)cyclohexanone, 2,6-bis(p-azidobenzylidene)-4-methylcyclohexanone, 2-phenyl-1,2-butadione-2-(o-methoxycarbonyl)oxime, 1-phenyl-propanedione-2-(o-ethoxycarbonyl)oxime, 1,3-diphenyl-propanetrione-2-(o-ethoxycarbonyl)oxime, 1-phenyl-3-ethoxy-propanetrione-2-(o-benzoyl)oxime, Michler's ketone, 2-methyl-[4-(methylthio)phenyl]-2-morpholino-1-propanone, naphthalenesulfonyl chloride, quinolinesulfonyl chloride, N-phenylthioacrione, 4,4'-azobisisobutyronitrile, diphenyl disulfide, benzthiazole disulfide, triphenylphosphine, camphorquinone, carbon tetrabromide, tribromophenylsulfone, benzoyl peroxide and combinations consisting of a photo-reducing dye such as Eosine or Ethylene Blue and a reducing agent such as ascorbic acid or triethanolamine. ~~In the present invention, one~~ One or more of them can be used.

Bridging Page 35, second paragraph, bridging Pages 36 and 37, please amend as follows:

A sensitizer is added to improve the sensitivity of the photosensitive paste. The sensitizers which can be used here include, for example, 2,4-diethylthioxanthone, isopropylthioxanthone, 2,3-bis(4-diethylaminobenzal)cyclopentanone, 2,6-bis(4-dimethylaminobenzal)cyclohexanone, 2,6-bis(4-dimethylaminobenzal)-4-methylcyclohexanone, Michler's ketone, 4,4-bis(diethylamino)-benzophenone, 4,4-bis(dimethylamino)chalcone, 4,4-bis(diethylamino)chalcone, p-dimethylaminocinnamylideneindanone, p-dimethylaminobenzylideneindanone, 2-(p-dimethylaminophenylvinylene)-isonaphthothiazole, 1,3-bis(4-dimethylaminobenzal)acetone, 1,3-carbonyl-bis(4-diethylaminobenzal)acetone, 3,3-carbonyl-bis(7-diethylaminocoumarin), N-phenyl-N-ethylethanolamine, N-phenylethanolamine, N-tolyldiethanolamine, N-phenylethanolamine, isoamyl dimethylaminobenzoate, isoamyl

diethylaminobenzoate, 3-phenyl-5-benzoylthiotetrazole, 1-phenyl-5-ethoxycarbonylthiotetrazole, etc. ~~In the present invention, one~~One or more of them can be used. Among sensitizers, some can be used also as photo polymerization initiators. When a sensitizer is added to the photosensitive paste ~~of the present invention~~, the amount is usually 0.05 to 10 wt% based on the amount of the photosensitive component. A preferable range is 0.1 to 10 wt%. If the amount of the sensitizer is too small, the effect of improving the photosensitivity cannot be manifested and if too large, the exposed portion remaining rate may become too small.

Page 37, third paragraph, bridging Page 38, please amend as follows:

How to form the phosphor layer ~~of the present invention~~ is described below. A phosphor paste prepared as described above is applied to the spaces between the respectively adjacent barrier ribs of the substrate with a plurality of barrier ribs. Fig. 1 shows a state where the phosphor paste is applied from the outlet holes of a paste applicator to coat the spaces between the respectively adjacent phosphor of the substrate provided with electrodes, dielectric and barrier ribs. Fig. 2 is an illustration for explaining the positional relation between the substrate and the paste applicator, and will be very useful for understanding the ~~present invention~~structure described below.

Page 41, third paragraph bridging Page 42, please amend as follows:

~~In the present invention, after~~After a phosphor paste is applied from the outlet holes, water, organic solvent, organic component, etc. can be evaporated or decomposed for removal by heating such as drying or burning, to form a phosphor layer.

Page 46, first and second full paragraphs, please amend as follows:

The apparatus for phosphor paste coating ~~of the present invention~~ is described below. The apparatus for producing a plasma display ~~of the present invention~~ is composed of a table to be mounted with a substrate with a plurality of barrier ribs and a paste applicator with a plurality

of outlet holes corresponding to the spaces formed between the respectively adjacent barrier ribs on the substrate for forming stripes of the phosphor pastes on the spaces between the respectively adjacent barrier ribs.

Fig. 3 is a general perspective view showing the apparatus for producing a plasma display ~~of the present invention~~ as an embodiment. Fig. 4 is a schematic drawing showing the table 6 and the paste applicator 20 of Fig. 3, for illustrating an important portion of the production apparatus.

Bridging Page 54, first and second paragraph, bridging Page 55, please amend as follows:

The height sensor 40 ~~to which the present invention can be applied~~ can be of any principle to allow measurement, such as non-contact type using a laser or ultrasonic waves, etc. or contact type using a dial gauge or differential transformer, etc.

Then, the table 6 is ~~started to be~~ moved toward the paste applicator 20, and is accelerated to a predetermined coating speed before the coating start position of the substrate 4 reaches the position below the outlet holes of the paste applicator 20. The distance between the movement start position of the table and the coating start position must be long enough to allow the table 6 to be accelerated to the coating speed.

Page 56, first full paragraph, please amend as follows:

If the phosphor paste 42 is a liquid with a relatively high viscosity, it is difficult to instantaneously stop the discharge from the outlet holes of the paste applicator 20 by the action of the remaining pressure. So, as soon as the supply of the phosphor paste 42 is stopped, the pressure of the manifold 41 of the paste applicator 20 is returned to ~~the~~ atmospheric pressure, or changed to a negative pressure, to suck the phosphor paste from the outlet holes of the paste applicator 20, for allowing the application of the phosphor paste from the outlet holes to be stopped in a short time. As for the means to change the pressure of the manifold 41 to a negative

pressure, if the supply unit 50 is a pump, the pump can be operated reversely, that is, in the direction to suck the phosphor paste. In the case of pressure feed, the supply unit 50 can be connected with a vacuum source, to change the pressure of the manifold 41 to a negative pressure.

Bridging Page 58, fourth paragraph through Page 60, second paragraph, please amend as follows:

In this ~~embodiment of the present invention~~, example, after the distance between the outlet holes of the paste applicator 20 and the top ends of the barrier ribs of the substrate 4 has been set, the application of the phosphor paste 42 is started. The reason is that if the application of the phosphor paste 42 is started before the distance between both is set, the phosphor paste 42 spreads at the tip faces of the outlet holes when it is applied from the outlet holes, to contaminate other portions than the outlet holes, and that in an extreme case, the portions of the phosphor paste 42 applied from the adjacent outlet holes join disadvantageously, not allowing highly accurate coating. If the application of the phosphor paste 42 is started after the tip faces of the outlet holes of the paste applicator 20 have been brought close to the substrate 4, the phosphor paste 42 is guided into the spaces between the respectively adjacent barrier ribs before the phosphor paste 42 is spread at the tip faces. So, the inconvenience as described above does not happen.

Furthermore, this ~~embodiment~~example describes an application case where the substrate 4 travels in the X-axis direction while the paste applicator 20 travels in the Y-axis and Z-axis directions. However, the table and the paste applicator can be of any traveling style, as far as the structure or style allows the paste applicator 20 and the substrate 4 to travel relatively three-dimensionally.

The above detailed description covers a case of coating with one phosphor paste, but the ~~present invention~~apparatus can also be applied to a case where the three phosphors of red, blue

and green can be simultaneously applied for coating.

Figs. 5 and 6 are schematic perspective views showing examples of the paste applicator ~~used in the present invention~~. In Fig. 5, holes with a certain diameter are provided as outlet holes 501 in a flat surface. Furthermore, the outlet holes can be formed by arranging pipes 601 with the same form as shown in Fig. 6, and this paste applicator is preferable since the paste applicator is less likely to be contaminated.

It is preferable that the centers of all the outlet holes of the paste applicator are arranged to ~~position~~ positions above the respective spaces between the barrier ribs to be coated with the phosphor paste.

Bridging Page 61, second paragraph, bridging Page 62, please amend as follows:

Fig. 7 is a sectional view and bottom view showing a further other example of the paste applicator ~~of the present invention~~. One paste applicator has a plurality of phosphor paste storage sections 704, 705 and 706, phosphor paste supply ports 701, 702 and 703 for supplying phosphor pastes to the phosphor paste storage sections 704, 705 and 706, and passages 707, 708 and 709 for connecting the storage sections 704, 705 and 706 with outlet holes 710, 711 and 712 respectively. Furthermore, as shown in the bottom view, the number of the outlet holes 710, 711 and 712 is larger than that of the storage sections 704, 705 and 706, and the respective outlet holes 710, 711 and 712 are arranged on straight lines respectively. This allows different phosphor pastes to be applied from one paste applicator. The shortest distance between the outlet holes for applying phosphor pastes different in color is 600 μm or more, to prevent the mixing of different colors.

Page 62, first paragraph, please amend as follows:

Fig. 8 is a schematic perspective view for illustrating an important portion of the plasma display producing apparatus as a further ~~other embodiment of the present invention~~example.

Instead of arranging one paste applicator, two or more paste applicators can be arranged in the Y direction. The paste applicators 801 and 802 are driven by a controller not illustrated, in the X and Y directions synchronously or non-synchronously. If two or more paste applicators are used like this, to coat the substrate 4 on the table 6 with the phosphor paste(s), the coating time can be shortened.

Page 62, third paragraph bridging Page 63, please amend as follows:

It is preferable in view of efficiency that the two or more paste applicators are located apart from each other in the direction perpendicular to the barrier ribs by an integer times the space between the adjacent barrier ribs, and that when the difference in location between the adjacent paste applicators is less than the external width of each paste applicator, they are located apart from each other in the direction parallel to the barrier ribs.

Page 67, first paragraph, please amend as follows:

Examples

The ~~present invention~~apparatus and method is described below concretely in reference to examples, but is not limited thereto or thereby. In the following examples ~~of the present invention~~ and comparative examples, “%” is “wt%” unless otherwise specified. The formed phosphor layer was evaluated in reference to the following seven items.

- Paste dischargeability from outlet holes
- Coating time (total time taken for phosphor paste coating (excluding drying time))
- Side wall thickness (average of the thickness at nine places in one plane at the center of the height of each barrier rib)
- Bottom thickness (average of the thickness at nine places in one plane on the dielectric layer)
- Thickness distribution (difference between the maximum thickness and the minimum thickness in measurement at nine places)

- Whether or not the paste is deposited on the top ends of barrier ribs
- Mixing of colors (leak of phosphor paste onto the spaces between the barrier ribs adjacent to the spaces between the barrier ribs to be coated)

Page 78, first and second paragraphs, please amend as follows:

Industrial Applicability

~~According to the present invention, since~~Since a highly precise phosphor layer can be simply formed on the highly precise spaces between barrier ribs, a widely applicable high quality plasma display with a phosphor layer usable as a highly precise plasma display can be obtained. In addition, the plasma display can be produced continuously at a high productivity level industrially advantageously.

The highly precise plasma display ~~obtained in the present invention~~ can be used widely in the display field for wall mounted television sets and information displays.